Mathematics		

| Math 4.12 | The Transformer
This lesson uses spreadsheet software to help students perform metric conversions. | 4th Grade |

| Experiential Learning
Interactive Demonstration | | C/T 5.2, 5.4 |

| | | Understanding |

Celestial Seasonings
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Curriculum Area	Science
Subject Area	Earth Science/Space
Grade Level	4th grade, 3rd grade and 6th grade
Learning Objectives	• The student will investigate the spatial relationships among the Earth, moon, and sun. • The student will understand the effect of celestial bodies on Earth's seasons. • The student will conduct research on the seasons in order to create an electronic presentation on that subject.
Correlation to the SOL	Science 4.7, 3.8, 6.10 C/T 5.2, 5.3, 5.4
Video/Technology Hardware/Software Needed	**For class:** Computer with CD-ROM drive and audio capabilities Computer Projector System TV/Monitor and VCR **For each student:** Computer with CD-ROM drive *HyperStudio* software **Other:** Selected video, CD-ROMs, and Web sites from Technology Resources
Materials Required	**For each student:** A copy of HyperStudio Basics A copy of Student Guide to HyperStudio Animation A copy of the Evaluation Checklist
Procedures/Activities	1. Teacher chooses resources (including at least one video source) from the Technology Resources attachment.

	2. Show a pre-selected video clip to introduce the subject to your students. Tell them that they will be creating a HyperStudio stack about the relationships between the earth, sun and moon. The stack will also include an animation of the movement of the earth, sun and moon in relation to seasons. Give students a copy of each of the handouts, including the Evaluation Checklist.
	3. Teachers may need to demonstrate using the CD-ROM to conduct research. Then the students are allowed to conduct their own research using the CD-ROM and other resources, taking notes for their stack.
	4. Students create a HyperStudio stack about the earth, sun and moon, including the animation they have created. They can choose which topics they wish to cover from the list on the Evaluation Checklist, or they can create their own topic with approval from the teacher. They then present their stacks to the class.
Content Assessment	See attached Checklist
Technology Integration Assessment	See attached Checklist
Extensions	**Math:** Students can be challenged to calculate the relative sizes and distances between the earth, moon and sun and find a way to show these large numbers in meaningful ways. **History:** Students can investigate the past theories of how the earth, moon and sun are related. **Art:** Students can create mobiles that demonstrate the paths that the various celestial bodies take around each other.

Technology Resources for the Seasons

Instructional Videos

Take a Look #8: Seasons (10 min, grades 2-4)

Take a Look #13: The Moon (10 min, grades 2-4)

Newton's Apple #1503: Phases of the Moon (30 min, grades 5-12)

Journey Through the Solar System #5: Assignment Shoot the Moon (30 min, grades 9-12)

Journey Through the Solar System #6: The Moon and Man (30 min., grades 9-12)

CD ROMs

Eyewitness Space *(Dorling Kindersley)*

Imagine the Universe! *(see http://catalog.core.nasa.gov/core.nsf/ and search for the title)*

Web Sites

Astronomy and Flight Resources
http://www.cstone.net/~huneycut/webresources/astronomy.html

Discovering the Earth Moon Relationship
http://earthview.sdsu.edu/trees/E-Moon.html

Moon Discovery
http://trackstar.hprtec.org/main/display.php3?track_id=8340

Astronomy Module Pilot Project
http://bvsd.k12.co.us/~rochman/astromodule.html

Moon Glow
http://starchild.gsfc.nasa.gov/docs/StarChild/teachers/moonglow.html

Here Comes the Sun!
http://vortex.plymouth.edu/sun.html

HyperStudio Basics

1. **Setting up the stack:**
   - At the **Student** Menu, click on **HyperStudio**.
   - Click on **New Stack**. Click **Yes**, then **Yes**.
   - Click on the window bar and pull it to the right.
   - Click on **Tools** and drag down and to the left of the window.
   - Click on the **Colors** and drag down and to the left under the tools.

2. **Inserting a graphic object:**
   - Under **Objects** select **Add a Graphic Object...**
   - Click on **Desktop**, your disk icon, then the name of the graphic. Click on **OK.**
   - With the **Lasso** or **Square Selector Tool**, crop the picture. Click on **OK**.
   - Click in the middle of the picture and drag to place it.
   - Click outside of the picture. Select the frame color, if desired and click on the up arrow to select a width. Click on **OK.**

   To edit the graphic later:
   - Click on the **Pointer Tool** and click once in the middle of the graphic to drag it to a new place.
   - Click on the **Pointer Tool** and double click on the graphic for more options. Click on **OK** when done.

3. **Creating a frame:**
   - Click on the **Rounded Rectangle Tool**, the **Rectangle Tool**, or the **Oval Tool**.
   - Click in a corner and drag diagonal to the other corner.
   - Click on the **Paint Bucket**. Click on a color or pattern. Click in the outside or inside of the border to fill with color.
   - Note! Patterns cannot be changed later on, solid colors can.

4. **Adding text:**
   - Under **Objects**, go to **Add a Text Object**, then on **OK**.
   - Click on the inside of the dotted box and drag it to where text is needed.
   - Shape the box by clicking on the dotted lines and dragging.
   - Click outside the box.
   - Choose a **Text** and **Background** color.
   - For labels, titles, and short text click <u>off</u> **Draw scroll bar**.
   - Click on **Style...** Choose the text, style, and size. (24, 36, or 48 is good for labels and titles, 18 for paragraphs.)
   - Next to **Align:** click and select **Center** for titles or labels, **Left** for paragraphs.
   - Click on **OK** and then on **OK** again.
   - Click on the **T(text)Tool** and click inside the box.
   - Type the text.

   To edit the text later:
   - Click on the **T** tool and click in the middle of the graphic. Delete or insert text.
   - Click on the **Pointer Tool** and double click on the text for options. Click on **OK** when done.

5. **Drawing objects:**
   - Use the **Paint Tools** to draw directly on the page, as in Kid Pix or Super Print.
   - Double clicking on paint tools usually brings up options.
   - Remember, if you type text directly on the page, it cannot be edited, only erased.

   To move drawn objects:
   - Click on the **Square or Circular Selector Tool** or the **Lasso Tool**.

- Click and drag diagonally from corner to corner to select.
- Click in the middle of the object and drag to place it.

6. Starting a new card:
- Under **Edit** select **New Card**.

7. To clear everything except the text and graphic objects:
- Under **Edit** select **Erase Background.**

8. Adding buttons: Note! Add buttons only when two or more cards are done.
- Under **Options** click on **Add a Button...**
- Decide on either a word button or an icon button.

For word buttons:
- Type a button name like: **NEXT, MAIN** or **BACK.**
- Choose a name (text) color and background color.
- Choose a button shape option.

For icon buttons:
- Click on **Icons...** and select an icon. Click on **OK.**
- Try choosing the invisible box option as well with icons.

- Click on **OK**.
- Position the pointer inside the button. Click and drag the button to the bottom or top right or left, depending on if it is a back button or a forward button.
- Click outside the button.
- Click **Another Card**.
- Click on an **arrow** until the linking card is showing. Click on **OK**.
- Pick a **Transition option** and a **Speed** Click on **Try it** to preview the choice.
- Click on **OK** and then on **Done.**
- Click on the **Hand Tool** and then on the button to test.

To edit a button already made:
- Click on the **Pointer Tool**.
- To move the button, click once on the button and then click and drag to a new place.
- Double click on the button for other editing changes.
- Make any necessary changes to the options showing.
- Click on **Actions** . Click on **Another Card**, even if it is already selected.
- Click on the **Arrows** if necessary to change the linking card.
- Change any transition options necessary.
- Click on **OK** and then on **Done.**
- Click on the **Hand Tool** and then on the **button** activate.

Student Guide to Creating an Animated HyperStudio Card on the Seasons

1. **Open** a HyperStudio **New Stack**.

2. **Click** on **Yes** and **OK**.

3. Bring down the **tools** and the **colors**.

4. Using the **circle tool** draw a sun. Use the **fill tool** to fill it in.

5. Using the **circle tool**, draw a black orbit around the sun.

6. Using the **circle tool**, draw a small blue circle on the orbit. **Fill** in with blue.

7. Under **Objects** go to **Add a button**. Under **Type** click on the **lasso tool** then on **OK** and **OK**. and **OK**.

8. Circle the blue circle with the **lasso** and then **click** on **OK**.

9. Under **Things to Do**: **click** next to **Play Animation**, then on **OK** and then on **Current Card**. Again frame the blue circle.

10. **Hold down and drag** the mouse cursor clockwise to record a path. Release the mouse when done.

11. **Click** on **Try It**. **Click** on **OK** and then on **Done**.

12. **Draw** symbols for the seasons on each side of the orbit.

13. **File** and **save** your work. **Title** it Seasons.

Evaluation Checklist for HyperStudio
Celestial Seasonings Project

Title Page:
___Frames
___Appropriate picture
___Title and Name of Author

Animation:
___Neat drawings
___Seasons in proper place on diagram
___Animation works properly

Other pages (minimum of 4/maximum of 8):
___Title
___Text shows knowledge
___Complete sentences
___Picture
___Frame
___Button back

Potential page topics:

Compare physical properties of earth, sun and moon
Describe sun characteristics
Phases of the moon
Tidal activity caused by moon
Origins of the earth, sun and moon
Solar eclipse
Lunar eclipse
Illustrated definitions of Revolution and Rotation
Historical opinions of the earth, sun and moon relationship
Superstitions about the moon
Gravity's role in relation to orbits
Equinoxes and solstices